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REMARKS

Claims 12-16, 18, 23, 25-30, 31, 37, and 39-40 remain pending in the present application. Claims 12 and 26 have been amended. Claims 17 and 31 have been canceled. Claims 41-44 have been added. Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the office action of May 15, 2007, the following actions were taken:

(1) Claims 12-17, 23, 25-31, 37, and 39-40 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Publication No. 2004/0063807 to Wang et al. (hereinafter "Wang") in view of evidence given in *Hawley's Condensed Chemical Dictionary*;

(2) Claims 18 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of U.S. Publication No. 2004/0229974 to Miyabayashi (hereinafter "Miyabayashi");

(3) Claims 12-15, 17-18, 23, 25-29, 31-32, 37, and 39-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2003/0069329 of Kubota et al. (hereinafter "Kubota") in view of *Hawley's Condensed Chemical Dictionary* and either U.S. Patent No. 6,536,890 to Kato et al. (hereinafter "Kato") or U.S. Patent No. 5,207,824 to Moffatt et al. (hereinafter "Moffatt"); and

(4) Claims 16 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kubota in view of *Hawley's Condensed Chemical Dictionary* and either Kato and Moffatt and further in view of U.S. Patent Publication No. 2004/0055508 of Miyamoto et al. (hereinafter "Miyamoto") or Wang.

It is respectfully submitted that the presently pending claims be examined and allowed. Applicants submit that each and every amendment herein, and throughout the prosecution of the present application is fully supported by the specification as originally filed, and that no new matter has been added.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 12-17, 23, 25-31, 37, and 39-40 under 35 U.S.C. 102 over Wang. Before discussing the rejection, it is thought proper to briefly

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state what is required to sustain such a rejection. It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987). In order to establish anticipation under 35 U.S.C. 102, all elements of the claim must be found in a single reference. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), *cert. denied* 107 S.Ct. 1606 (1987). In particular, as pointed out by the court in *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1981), *cert. denied*, 469 U.S. 851 (1984), "anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference." "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989). As the Examiner has rejected the aforementioned claims over Wang, a brief discussion of this reference is provided.

Wang

Wang discloses an aqueous ink-jet ink including a pigment, a polymer latex having at least one halogenated vinyl monomer, a surfactant and a humectant. An ink and receiver combination for a non-absorbing substrate is also provided. See Abstract. Although Wang states that the pigment can be self-dispersible, encapsulated, or stabilized by a dispersant, only pigments stabilized by a dispersant are exemplified. See [0023] and Examples [0056-0085]. Additionally, of the 27 types of pigments listed in paragraph [0029], no encapsulated pigments are listed, and of the 287 explicitly identified individual pigments, it does not appear that any encapsulated pigments are listed. See [0029]. It is also worthy to note that not a single acid monomer containing latex appears to be exemplified. See Examples [0056-0085]. Thus, the specific combination of a polymer-encapsulated pigment with an acid monomer-containing latex appears nowhere in Wang.

Claims 12-17, 23, 25-31, 37, and 39-40

Independent claims 1 and 26 have been amended to recite that the latex includes surface acid groups provided by acid monomers being present from 1 wt% to 15 wt% of the latex. The Examiner has alleged that this limitation is taught since

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Wang discloses that the polymer latex contain less than 50 mol % of a hydrophilic monomer such as methacrylic acid. See Office Action page 3. However, Wang teaches a certain mol % of hydrophilic monomers, as opposed to the present invention which recites 1 wt% to 15 wt% of an acidic monomer containing latex. Specifically, Wang explicitly lists 26 hydrophilic monomers, of which only 4 are acidic monomers. See [0043]. Thus, there appears to be no teaching in Wang that recognizes the difference between acidic monomers and merely hydrophilic monomers, nor is there any teaching in Wang that would lead one skilled in the art to select a specific weight percentage of acidic monomers, and then use the latex formed therefrom in combination with polymer-encapsulated pigments.

As the Examiner is relying on inherency rather than a direct teaching for the claimed combination, it is notable that in order to establish inherency, extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Even if a prior art reference is capable of being modified and the modification would anticipate the invention, this is not sufficient to support an anticipation rejection based on inherency. The fact that Wang explicitly teaches hydrophilic monomers would not necessarily require them to be acidic, nor would one skilled in the art recognize such a limitation. Also, the Applicant contends that to combine the elements as the Examiner has proposed would be a modification of the teachings of Wang as Wang does not explicitly teach the use of acidic monomers or provide an example of such.

Additionally, the Examiner has not provided the present combination of elements. For example, even though Wang generally discloses different types of pigments, including self-dispersed, encapsulated, and dispersed, can be used in its invention, Wang explicitly lists types of pigments and specific individual pigments in paragraph [0029] of the specification. Notably missing from paragraph [0029] is any reference to an encapsulated pigment. Additionally, Wang provides no examples of inks containing encapsulated pigments. As such, the Examiner is picking and choosing discrete elements and combining them in a manner not taught by Wang. The Applicant would like to remind the Examiner that providing the elements is not enough but the Examiner must show the identical invention in as complete detail as is

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contained in the claim. The Applicant submits that the Examiner has not met this standard.

Therefore, the Applicant submits that the present independent claims, and subsequent dependent claims, contain elements not taught in Wang and the specific claimed combination is not taught by Wang. As such, the Applicant respectfully requests that the Examiner withdraw the present rejection.

Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 12-18, 23, 25-32, 37, and 39-40 as being obvious in view of several references. Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. The Applicant does not deem it necessary to recite the entire case law standard required in order to establish a *prima facie* case of obviousness. However, the Applicant would like to briefly remind the Examiner of the required three criteria for a *prima facie* case of obviousness, namely 1) that the asserted references as modified or combined must teach or suggest each and every element of the claimed invention, 2) that the asserted references as modified or combined must provide a sufficient likelihood of successfully making the modification or combination, and 3) that the Examiner must identify a reason for the modification or combination asserted. The Applicant respectfully asserts the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in any of the rejections. As the Examiner has rejected the aforementioned claims over two primary references, a brief discussion of these references is provided below. Additionally, a secondary reference relied on by the Examiner is also briefly discussed.

Miyabayashi

Miyabayashi teaches a microencapsulated pigment where pigment particles with an anionic group on the surface are coated with a polymer. Ink-jet inks including the microencapsulated pigment and water, and methods of printing with the ink-jet inks are taught. See Abstract. Miyabayashi also teaches that heating of printed matter may be necessary to accommodate polymers with high transition temperatures. See [0245]. Miyabayashi does not disclose the use of a thermal ink-jet printer.

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Kubota

Kubota teaches an ink composition with colorant, resin emulsion particles, water-soluble organic solvent, water and a reaction solution. The reference further discusses a recording method using the ink composition. See Abstract. Specifically, the recording method comprises the steps of depositing a reaction solution on the recording medium, depositing an ink composition on the recording medium, and washing the recording medium. See [0025-0028]. Kubota does not teach the use of thermal ink-jet architecture.

Kato

Kato teaches compositions and methods for improving optical density and saturation by ink-jet recording. Kato teaches using a liquid composition with cationic micro-particles in combination with a separate anionic ink composition. An image can be formed by applying both the liquid composition and the anionic ink to a recording medium such that the two liquid compositions contact one another on the recording medium. See Abstract.

Wang in view of Miyabashi

The Examiner has rejected claims 18 and 32 over Wang in view of Miyabashi. Specifically, the Examiner has used Miyabashi to provide the amount of crosslinking monomer recited in claims 18 and 32, which is not disclosed in Wang. However, as previously discussed above, Wang does not provide an ink composition having 1 wt% to 15 wt% of an acidic monomer containing latex in specific combination with a polymer-encapsulated pigment. Furthermore, the Applicant submits that Miyabashi does not correct the deficiencies of Wang.

Additionally, the Applicant submits that the Examiner has provided no reason why a person skilled in the art would pick and choose a certain pigment with a certain latex containing an acidic monomer from the present combination of references since the references are absolutely devoid of any teachings or disclosure regarding the specific combination as presently claimed. For example, there is no teaching or disclosure in the reference or in the art in general that would lead one skilled in the art to choose a latex with an acidic monomer of 1 wt% to 15 wt% with a polymer-encapsulated pigment.

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As the Examiner has not provided a reason why a person skilled in the art would make such a combination, the Applicant further submits that reasons of achieving good rub resistance, good waterfastness, lightfastness, abrasion resistance, good adhesion to non-absorbing substrates, or any other quality disclosed in Wang, could not be a reason to combine a latex monomer with an acidic monomer of 1 wt% to 15 wt% with an encapsulated pigment since Wang already accomplishes this with non-acidic latexes and non-encapsulated pigments.

Therefore, the Applicant respectfully requests that the Examiner withdraw the present rejection.

Kubota in view of various references

The Examiner has used Kubota in view of various combinations of Kato, Moffatt, Miyamoto, and Wang. Regarding Kato, the Examiner cites to a brief section of the disclosure noting that ink according to the invention can be used with thermal ink-jet architecture. Immediately thereafter, the disclosure notes that when used with an ink-jet recording method, the thermal properties (e.g. specific heat, thermal expansion coefficient, thermal conductivity) may have to be regulated.

The Examiner has focused on the motivation of Kato to ink ejected on stable basis with no satellite dots produced as motivation for the combination. However, as noted in the present Application, configuring a system including thermal ink-jet architecture often requires additional consideration and experimentation of at least selection of ink components. To quote the disclosure,

"As a further note, thermal ink-jet systems are quite different in their jetting properties than piezo ink-jet systems. As such, polymer colloid particulates that are effective for use in piezo ink-jet systems are not necessarily effective for use with thermal ink-jet ink systems. However, the converse is not necessarily true. In other words, polymer colloid particulates that work well with thermal ink-jet systems are more likely to work with piezo systems than *vice versa*. Therefore, the selection or manufacture of polymer colloid particulates for use with thermal ink-jet systems often requires more care, as thermal ink-jet systems are less forgiving than piezo ink-jet systems." p. 14, ln. 30 - p. 15 ln. 6.

Such warning regarding the difficulty in working with thermal ink-jet architecture is echoed by Kato's brief statement above. Kato, however, does not deal with the combination of the ink components in a single fluid as does the present

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invention. One of ordinary skill in the art would have no reason to combine the inks of Kubota with the thermal ink-jet architecture briefly noted in Kato.

The Examiner has responded to the above arguments alleging that it would have been obvious to use a thermal ink-jet system since the ink is identical to the Applicant's claimed ink, however, such reasoning is based on circular logic, i.e., hindsight. One skilled in the art would not necessarily conclude that the ink in Kubota would be thermally ink-jettable based on the fact that the Applicant has successfully provided a thermally ink-jet ink, since without the present disclosure, one skilled in the art would have no idea that the Applicant had provided the ink.

The Examiner has further argued that Kubota does not require that the ink is used in a piezo ink jet system, and thus, one skilled in the art would assume the ink is suitable for thermal ink-jet printing. However, such an argument is flawed. The lack of disclosure regarding thermal printing would not lead one skilled in the art to believe that thermal ink-jet would be implied, but quite the opposite. In other words, one skilled in the art would know how difficult thermal ink-jet printing is and would most likely conclude that such a broad range of compositions as disclosed in Kubota would more likely be piezo ink-jettable.

Additionally, such a combination would not provide a reasonable expectation of success to skilled in the art, as the selection or manufacture of components for use with thermal ink-jet systems often requires a much greater level of care than with other ink-jet systems.

As previously argued, Kubota fails to disclose printing of an ink-jet ink including polymer-encapsulated pigment colorant and acid-functionalized polymer colloid particulates dispersed in a liquid vehicle having a volatile co-solvent, where the image is heated after printing. For example, the ink composition referred to by the Examiner (Ink 4, Table F2) was not subjected to heating. Conversely, the only compositions where heating was utilized (Ink composition A, Color Ink Set A) did not comprise polymer-encapsulated pigments—rather, the pigments and dispersants were combined by mere mixing. See [0241]. These examples in Kubota provide no teaching, therefore, of the combination of elements claimed in the present independent claims 12 and 26. Kato does not remedy this deficiency and therefore the combination does not teach each and every element.

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Even though the Examiner has alleged that one must look at what the reference teaches as a whole, including non-preferred portions, the Applicant maintains that the reference as a whole including non-preferred portions do not teach the combination of elements as presently claimed. The Examiner is picking and choosing discrete elements and combining them in a manner not disclosed in the reference. The Applicant submits that Kubota discloses thousands of possible combinations and that the Examiner has provided no reason for one skilled in the art to pick the Applicant's present combination absent the Applicant's present disclosure.


Therefore, the cited combination fails to provide reasonable expectation of successfully combining the references and fails to teach each and every element of the present invention. Additionally, the Examiner has not provided a reason for one skilled in the art to make present combination. As such, Applicant respectfully requests that these rejections be withdrawn.

In view of the foregoing, Applicants believe that all the presently pending claims present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone the undersigned attorney at (801) 566-6633 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 15th day of August, 2007.

Respectfully submitted,


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